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1724
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Choi, et al.

Serial No. 09/920,341

Filed: August 1, 2001

For: METHODS FOR HIGH-PRECISION
GAP ORIENTATION SENSING
BETWEEN A TRANSPARENT
TEMPLATE AND SUBSTRATE FOR
IMPRINT LITHOGRAPHY



§ Examiner: Unknown
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§ Group Art Unit: 1724
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§ Atty. Dkt. 5119-08301
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Certificate of Mailing 37 C.F.R. § 1.8(a)	
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INFORMATION DISCLOSURE STATEMENT

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Sir:

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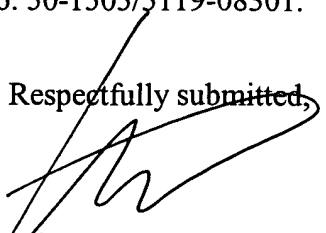
It is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 (references A1-A118) be considered by the Examiner and made of record. A copy of each listed document is enclosed for the convenience of the Examiner.

Applicant also requests that the Examiner consider the following U.S. Patent applications with amendments, as noted: 09/908,455 (with amendment); 09/907,512 (with amendment); 09/934,248 (with amendment); 09/698,317 (with amendment); 09/976,681; and 09/908,765. Copies of these applications and amendments are enclosed for the convenience of the Examiner.

Choi, et al.
09/920,341

Should any fees be required, the Commissioner is authorized to charge said fees to
Conley, Rose & Tayon, P.C. Deposit Account No. 50-1505/5119-08301.

Respectfully submitted,


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Date: 6/11/02

Form PTO-1449 (modified) List of Patents and Publications For Applicant's Information Disclosure Statement (Use several sheets if necessary)		ATTY. DKT. NO. 5119-08301 APPLICANT: Choi et al. FILING DATE: August 1, 2001		SERIAL NO. 09/920,341 GROUP: 1724			
U.S. PATENT DOCUMENTS							
EXAM. IN TRADEMARK OFFICE	REF. DES.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	A1	3,807,027	4/1974	Heisler			
	A2	3,807,029	4/1974	Troeger			
	A3	3,811,665	5/1974	Seelig			
	A4	4,062,600	12/1977	Wyse			
	A5	4,098,001	7/1978	Watson			
	A6	4,155,169	5/1979	Drake et al.			
	A7	4,202,107	5/1980	Watson			
	A8	4,267,212	5/1981	Sakawaki			
	A9	4,337,579	7/1982	De Fazio			
	A10	4,355,469	10/1982	Nevins et al.			
	A11	4,414,750	11/1983	De Fazio			
	A12	4,451,507	5/1984	Beltz et al.			
	A13	4,610,442	9/1986	Oku et al.			
	A14	4,694,703	11/1987	Routson			
	A15	4,731,155	3/1988	Napoli et al.			
	A16	4,763,886	8/1988	Takei			
	A17	4,929,083	5/1990	Brunner			
	A18	4,959,252	11/1990	Bonnebat et al.			
	A19	5,072,126	12/1991	Progler			
	A20	5,110,514	5/1992	Soane			
	A21	5,126,006	6/1992	Cronin et al.			
	A22	5,204,739	4/1993	Domenicali			
	A23	5,240,550	8/1993	Boehnke et al.			
	A24	5,348,616	9/1994	Hartman et al.			
	A25	5,392,123	2/1995	Marcus et al.			
	A26	5,425,964	6/1995	Southwell et al.			
	A27	5,452,090	9/1995	Progler et al.			

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Information Disclosure Statement--PTO 1449 (modified)

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List of Patents and Publications
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U.S. PATENT DOCUMENTS

EXAM. INITIALS	REF. DES.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	A28	5,480,047	1/1996	Tanigawa et al.			
	A29	5,512,131	4/1996	Kumar et al.			
	A30	5,515,167	5/1996	Ledger et al.			
	A31	5,545,367	10/1996	Bae et al.			
	A32	5,566,584	10/1996	Briganti et al.			
	A33	5,633,505	5/1997	Chung et al.			
	A34	5,724,145	3/1998	Kondo et al.			
	A35	5,753,014	5/1998	Van Rijn			
	A36	5,760,500	6/1998	Kondo et al.			
	A37	5,772,905	6/1998	Chou			
	A38	5,776,748	7/1998	Singhvi et al.			
	A39	5,779,799	7/1998	Davis			
	A40	5,802,914	9/1998	Fassler et al.			
	A41	5,877,036	3/1999	Kawai			
	A42	5,877,861	3/1999	Ausschnitt et al.			
	A43	5,888,650	3/1999	Calhoun et al.			
	A44	5,900,160	5/1999	Whitesides et al.			
	A45	5,912,049	6/1999	Shirley			
	A46	5,942,871	8/1999	Lee			
	A47	5,948,470	9/1999	Harrison et al.			
	A48	5,952,127	9/1999	Yamanaka			
	A49	6,038,280	3/2000	Rossiger et al.			
	A50	6,039,897	3/2000	Lochhead et al.			
	A51	6,046,056	4/2000	Parce et al.			
	A52	6,051,345	4/2000	Huang			
	A53	6,074,827	6/2000	Nelson et al.			
	A54	6,091,485	7/2000	Li et al.			
	A55	6,128,085	10/2000	Buermann et al.			

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	A56	6,143,412	11/2000	Schueller et al.			
	A57	6,168,845	1/2001	Fontana, Jr. et al.			
	A58	6,180,239	1/2001	Whitesides et al.			
	A59	6,204,922	3/2001	Chalmers			
	A60	6,334,960	1/2002	Wilson et al.			

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	REF. DES.	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES/NO
	A61	00/54107	9/2000	WO			
	A62	01/33232	5/2001	WO			
	A63	01/33300	5/2001	WO			
	A64	244884	3/1987	EP			
	A65	733455	9/1996	EP			NO
	A66	2800476	7/1978	DE			NO
	A67	19648844	11/1999	DE			NO
	A68	1-196749	8/1989	JP			NO

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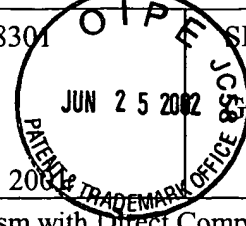
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OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)			
	A69	Stewart, D.; "A Platform with Six Degrees of Freedom", Proc. of Inst. Mech. Engrs., 1965, 180, 371-378.	
	A70	Paros, J.M.; Weisbord, L.; "How to Design Flexure Hinges", Machine Design, 1965, 151-156.	
	A71	Raibert, M.H.; Craig, J.J.; "Hybrid Position/Force Control of Manipulators", 1981, 102, 126-133.	
	A72	Hogan, Neville; "Impedance Control: An Approach to Manipulation", Journal of Dynamic Systems, Measurement and Control, 1985, 107, 1-7.	
	A73	Hollis, Ralph; Salcudean, S.E.; Allan, A.P.; "A Six-Degree-of-Freedom Magnetically Levitated Variable Compliance Fine-Motion Wrist: Design, Modeling and Control", IEEE Transactions on Robotics and Automation, 1991, 7, 320-332.	
	A74	Tomita, Y. et al.; "6-Axes Motion Control Method for Parallel-Linkage-Type Fine Motion Stage", Journal of Japan Society of Precision Engineering, 1992, 118-124.	
	A75	Slocum, Alexander; "Precision Machine Design: Macromachine Design Philosophy and its Applicability to the Design of Micromachines", Proc. of IEEE Micro Electro Mech. Systems Workshop, 1992, 37-42.	
	A76	Krug, Herbert; Merl, Norbert; Schmidt, Helmut; "Fine Patterning of Thin Sol-Gel Films", Journal of Non-Crystalline Solids, 1992, 447-450.	
	A77	Arai, T.; Larssonneur, R.; Jaya, Y.M.; "Calibration and Basic Motion of a Micro Hand Module", Proc. of IECON, 1993, 1660-1665.	
	A78	Peng, Zhi-Xin; Adachi, N.; "Compliant Motion Control of Kinematically Redundant Manipulators", IEEE Transactions on Robotics and Automation, 1993, 9, 831-837.	
	A79	Rong, Y.; Zhu, Y.; Luo, Z.; Liu, X.; "Design and Analysis of Flexure-Hinge Mechanism Used in Micro-Positioning Stages", ASME, 1994, 2, 979-985.	
	A80	Hashimoto, M.; Imamura, Y.; "Design and Characteristics of a Parallel Link Compliant Wrist", IEEE International Conference on Robotics and Automation, 1994, 2457-2462.	
	A81	Merlet, J.P.; "Parallel Manipulators: State of the Art and Perspectives", Advanced Robotics, 1994, 8, 589-596.	
	A82	Ananthasuresh, S.; Kikuchi, N.; "Strategies for Systematic Synthesis of Compliant MEMS", ASME, 1994, 2, 677-686.	
	A83	Arai, T.; Tanikawa, T.; Merlet, J.P.; Sendai, T.; "Development of a New Parallel Manipulator with Fixed Linear Actuator", Proc. of Japan/USA Symposium on Flexible Automation, 1996, 1, 145-149.	
	A84	Howell, L.L.; Midha, A.; "Loop-Closure Theory of the Analysis and Synthesis of Compliant Mechanisms", Journal of Mechanical Design, 1996, 118, 121-125.	
	A85	Haisma, J. et al.; "Mold-Assisted Nanolithography: A Process for Reliable Pattern Replication", Journal of Vacuum Science and Technology, 1996, 14, 4124-4128.	
	A86	Pernette, Eric; Henein, Simon; Magnani, Ivo; Clavel, Reymond; "Design of Parallel Robots in Microrobotics", Robotica, 1997, 15, 417-420.	

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A87	Rong, L.; Guanghai, Z.; "Dynamics of Parallel Mechanism with Direct Compliance Control", IEEE, 1997, 1753-1758.		
A88	Mittal, Samir; Menq, Chia-Hsiang; "Precision Motion Control of Magnetic Suspension Actuator Using a Robust Nonlinear Compensation Scheme", IEEE/ASME Transactions on Mechatronics, 1997, 2, 268-280.		
A89	Physik Instruments, Product Catalog for Micropositioning, 1997.		
A90	Williams, Mark et al.; "Six Degree of Freedom Mag-Lev Stage Development", SPIE, 1997, 3051, 856-867.		
A91	Lee, Chang-Woo; Kim, Seung-Woo; "Ultraprecision Stage for Alignment of Wafers in Advanced Microlithography", Precision Engineering, 1997, 21, 113-122.		
A92	Kanetomo, M.; Kashima, H.; Suzuki, T.; "Robot for Use in Ultrahigh Vacuum", Solid State Tech., 1997, 63-72.		
A93	Goldfarb, M.; Speich, J.; "Compliant Micromanipulator Design for Scaled Bilateral Telemanipulation of Small-Scale Environments", ASME, Dynamic Systems and Control Div., 1998, 64, 213-218.		
A94	Koseki, Y. et al.; "Design and Accuracy Evaluation of High-Speed and High Precision Parallel Mechanism", Proc. of IEEE, Intl. Conf. on Robotics & Automation, 1998, 1340-1345.		
A95	Kim, Won-Jong; Trumper, David; "High Precision Magnetic Levitation Stage for Photolithography", Precision Engineering, 1998, 22, 66-77.		
A96	Mansky, P. et al.; "Large-Area Domain Alignment in Block Copolymer Thin Films Using Electric Fields", Macromolecules, 1998, 31, 4399-4401.		
A97	Wang, W.; Loh, R.; Gu, E.; "Passive Compliance Versus Active Compliance in Robot-Based Automated Assembly Systems", Industrial Robot, 1998, 25, 48-57.		
A98	Scheer, H.C. et al.; "Problems of Nanoimprinting Technique for Nanometer Scale Pattern Definition", Journal of Vacuum Science and Technology, 1998, 16, 3917-3921.		
A99	Xia, Y.; Whitesides, George; "Soft Lithography", Annu. Rev. Mater. Sci., 1998, 28, 153-184.		
A100	Tajbakhsh, H. et al.; "Three-Degree-of-Freedom Optic Mount for Extreme Ultraviolet Lithography", ASPE, 1998, 18, 359-362.		
A101	Lee, Dong Sung et al.; "Ultra Precision Positioning System for Servo Motor-Piezo Actuator Using Dual Servo Loop and Digital Filter Implementation", ASPE, 1998, 18, 287-290.		
A102	Wu, Wei et al.; "Large Area High Density Quantized Magnetic Disks Fabricated Using Nanoimprint Lithography", 1998, Journal of Vacuum Science and Technology, 1998, 16, 3825-3829.		
A103	Ohya, Y. et al.; "Development of 3-DOF Finger Module for Micro Manipulation", Proc. of IEEE, Intl. Conf. on Intelligent Robots and Systems, 1999, 894-899.		
A104	Tanikawa, T. et al.; "Development of Small-Sized 3 DOF Finger Module in Micro Hand for Micro Manipulation", Proc. of IEEE, Intl. Conf. on Intelligent Robots and Systems, 1999, 876-881.		
A105	Colburn, M. et al.; "Step and Flash Imprint Lithography: New Approach to High-Resolution Patterning", Proc. of SPIE, 1999, 3676, 379-389.		

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	A106	Lucas Aerospace, Free-Flex Pivot Catalog. 1999	
	A107	Goldfarb, M.; Speich, J.E.; "A Well-Behaved Revolute Flexure Joint for Compliant Mechanism Design", Journal of Mech. Design, 1999, 121, 424-429.	
	A108	Geodetic Technology, G1000-PS Power Series Specifications, 1999, from www.hexapods.com	
	A109	Hexel Corporation, Tornado 2000 System Specifications, 1999, from www.hexel.com	
	A110	Physik Instruments, PI Online-Catalog, 1999, from www.physikinstrument.com	
	A111	Chou, Stephen; Zhuang, Lei; "Lithographically-induced Self Assembly of Periodic Micropillar Arrays", Journal of Vacuum Science and Technology, 1999, 17, 3197-3202.	
	A112	Ruchhoeft, P. et al.; "Patterning Curved Surfaces: Template Generation by Ion Beam Proximity Lithography and Relief Transfer by Step and Flash Imprint Lithography", Journal of Vacuum Science and Technology, 1999, 17, 2965-2982.	
	A113	Vanderbilt University Office of Transfer Technology; VU 9730 Specifications for Improved Flexure Device; 2001, from www.vanderbilt.edu	
	A114	Stix, Gary; "Getting More from Moore's", Scientific American, 2001, from www.scientificamerican.com	
	A115	Trilogy Systems, Linear Motors 310 Specification, 2001, from www.trilogysystems.com	
	A116	Choi, B.J. et al.; "Design of Orientation Stages for Step and Flash Imprint Lithography", Precision Engineering, 2001, 25, 192-199.	
	A117	PCT International Search Report for PCT/US 00/30041, dated 10/15/2001	
	A118	PCT International Search Report for PCT/US 01/26049, dated 2/19/2002	

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